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ABSTRACT

This book provides practical suggestions on conducting a skills analysis that identifies the skills required for each job or a skills audit that identifies the skills held by the individual. Chapter 1 describes the contribution of these two types of skills projects to the implementation of major industrial changes in Australia. Chapter 2 defines these terms: job analysis, skills analysis, skills audit, training needs analysis, skill, and competency. Chapter 3 describes these workplace reform activities: develop competitive strategy, work process analysis, job analysis, change to work organization, job redesign, and training needs analysis. Chapter 4 discusses the three steps at the planning stage: set up consultative committee, prepare project brief or proposal, and select a consultant or project officer. Chapter 5 describes in detail the four major steps involved in conducting the skills project: set climate for project, collect skills data, analyze data, and report results. Chapter 6 addresses implementing changes and identifies industrial relations issues. Appendixes include a list of 28 references, an annotated listing of 25 references for further reading, and a glossary. (YLB)

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How to do a Skills Analysis and Skills Audit

Geoff Hayton
Philip Loveder

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HOW TO DO A SKILLS ANALYSIS AND SKILLS AUDIT

Geoff Hayton

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Chapter one: Introduction

A *skills analysis* identifies the skills (or competencies) required for each job; a *skills audit* identifies the skills (or competencies) held by the individual.

Undertaking both skills analysis and skills audit contributes to the development of a more highly skilled workforce as well as helping to increase workforce productivity. Both are often involved in major industrial changes recently taking place in Australia and include:

- workplace reform;
- award restructuring;
- provision of training under the training guarantee legislation;
- development of national competency standards.

Skills analysis and skills audit projects have contributed significantly to the implementation of each of these initiatives. A brief description of their contribution follows.

Workplace reform

Substantial workplace reform has become an imperative for most Australian enterprises.

Workplace reform involves the introduction of new forms of work organisation within individual enterprises and across whole industries. It also involves some or all of the following:

- new technology;
- job redesign;
- restructuring of industrial awards or enterprise agreements; and
- a higher skilled workforce by means of training and skill based career paths.

Skills analysis projects often provide the information needed to initiate job redesign and facilitate the restructure of industrial awards or enterprise agreements. Skills analysis and skills audit projects have been used to help reclassify individuals under new industrial awards and identify training needs.

Award restructuring

Award restructuring is the substantial changing of industrial awards to allow new types of work organisation to be introduced into workplaces. Thus it is associated with workplace reform. Some award restructuring approaches involve the identification of skill levels and training. To identify skill levels, skills analyses may be undertaken. Skills audits and skills analyses help define each person's or each group's job classification in terms of skills as well as identifying training needs.

Provision of training under the training guarantee legislation

The Australian Government's Training Guarantee Act sets a minimum level of expenditure on 'structured' training for all employees. Skills analyses and skills audits provide a basis for determining training needs. Expenditure on such projects, when associated with training, generally is allowable as structured training expenditure.

National competency standards

National competency standards are endorsed by the National Training Board and under the present guidelines require the listing of the required elements of competence and associated performance criteria for each job type. The development of national competency standards may be regarded as a particular type of skills analysis project.

Competency standards may be developed from a skills listing of a previous skills analysis project. Alternatively, a skills analysis may follow the development of national competency standards in order to provide guidance for the development of vocational education and training programs. Once this process has been undertaken, assessing the skills or competencies of individuals through a skills audit is a relatively simple process.

Chapter two: Understanding the jargon

Some confusion exists in Australia over the meaning of the terms *skills analysis* and *skills audit*, and the many associated terms. The confusion is due to their inconsistent use among trainers, TAFE and training agencies, consultants and government bodies. It is hoped that the following set of definitions will help to remove this confusion. The definitions are based on papers, booklets and manuals written by the authors and colleagues in recent years, and published by the Commonwealth and the TAFE National Centre (see Clark 1990 and Hayton et al 1991).

There are six terms that need to be understood and their relationships made clear:

- job analysis;
- skills analysis;
- skills audit;
- training needs analysis;
- skill;
- competency.

Other important terms concerned with workforce skills are described in the glossary.

Job analysis is sometimes undertaken as a preliminary step before job redesign or skills analysis. Its focus is on the individual human activities which make up a job.

> *Job analysis is the identification of the duties and tasks which comprise each job, together with other relevant job information.*

A broader term is *occupational analysis* and a closely related term is *job evaluation* (see glossary). Job analysis differs from skills analysis in that it examines job activities or outcomes, whereas skills analysis examines the (underlying) knowledge, skills and attitudes required to perform these activities. Our definition of skills analysis is:

> *A skills analysis is a systematic process which identifies the skills or competencies required for a particular job.*

Skills audit is a complementary process to skills analysis. A skills audit identifies the skills held, whereas a skills analysis identifies the skills required. Thus, we define a skills audit as follows:

> *A skills audit is a systematic process which identifies the skills or competencies held by an individual or a group.*

It is important to note that the skills audit generally should identify all relevant vocational skills, both those skills currently used in the job, and those not currently used ('latent skills').

A training needs analysis may use the information from both a skills analysis and a skills audit, or may be a single process as follows:

> *A training needs analysis is the identification of the differences between the skills or competencies held by an individual or group and the skills or competencies required for the job.*

Thus, the training needs analysis focuses on discrepancies in human performance between what is required and what is the actual condition. The discrepancies could indicate:

- areas where training is needed; and
- the need for other responses such as job redesign or redeployment.

To identify appropriate non-training responses, information in addition to skills should be considered, such as the enterprise's strategic plans and the desired career paths of individuals. A training needs analysis that only identifies training needs may be too narrow in its scope.

These definitions use the term *skills* in its broader sense to mean: any learned ability or learned behaviour a person possesses, including knowledge, (physical/manual) skills and attitudes. We do not restrict the term to only physical or manual skills. We include the great variety of skills used in our working and non-working lives, such as interpersonal skills, contingency management skills, communication skills, organising and coordinating skills, and problem-solving skills.

The terms *competence, competency, competencies* and *competency standards* are frequently used in vocational education in Australia, and are related to *competency-based training*. We define *competence* and *competency* as the ability to perform the activities within an occupation or function to the standard expected in employment. (This accords with the National Training Board's definitions given in *Setting national skills standards - a discussion paper (1990)*, and *National competency standards: policy and guidelines* (1991)).

The term *competencies* is closely related to *skills* but is specialised in its meaning because it is restricted to workplace requirements which can be expressed as behavioural outcomes. A number of skills may be involved in a single competency.

Competency standards is a term introduced by the National Training Board in 1990. Its common use appears to be unique to Australia. A *competency standard* may be defined as an activity performed under specified conditions to a specified standard of performance in the workplace. This notion is widely accepted by the proponents of competency-based training, and accords with the National Training Board terminology which breaks this into two main parts:

- element of competency; and
- performance criteria.

A competency standard may also include a title and a range statement (see 'example of competency standard' box at end of Chapter 5).

The element of competency describes the things a person is able to do in terms of output. It comprises an activity which is described by a verb and its object. The performance criteria describe the required level of performance in the workplace.

Example of a competency standard

Element of competence: Implements measures for dealing with hazardous events associated with electrical work.

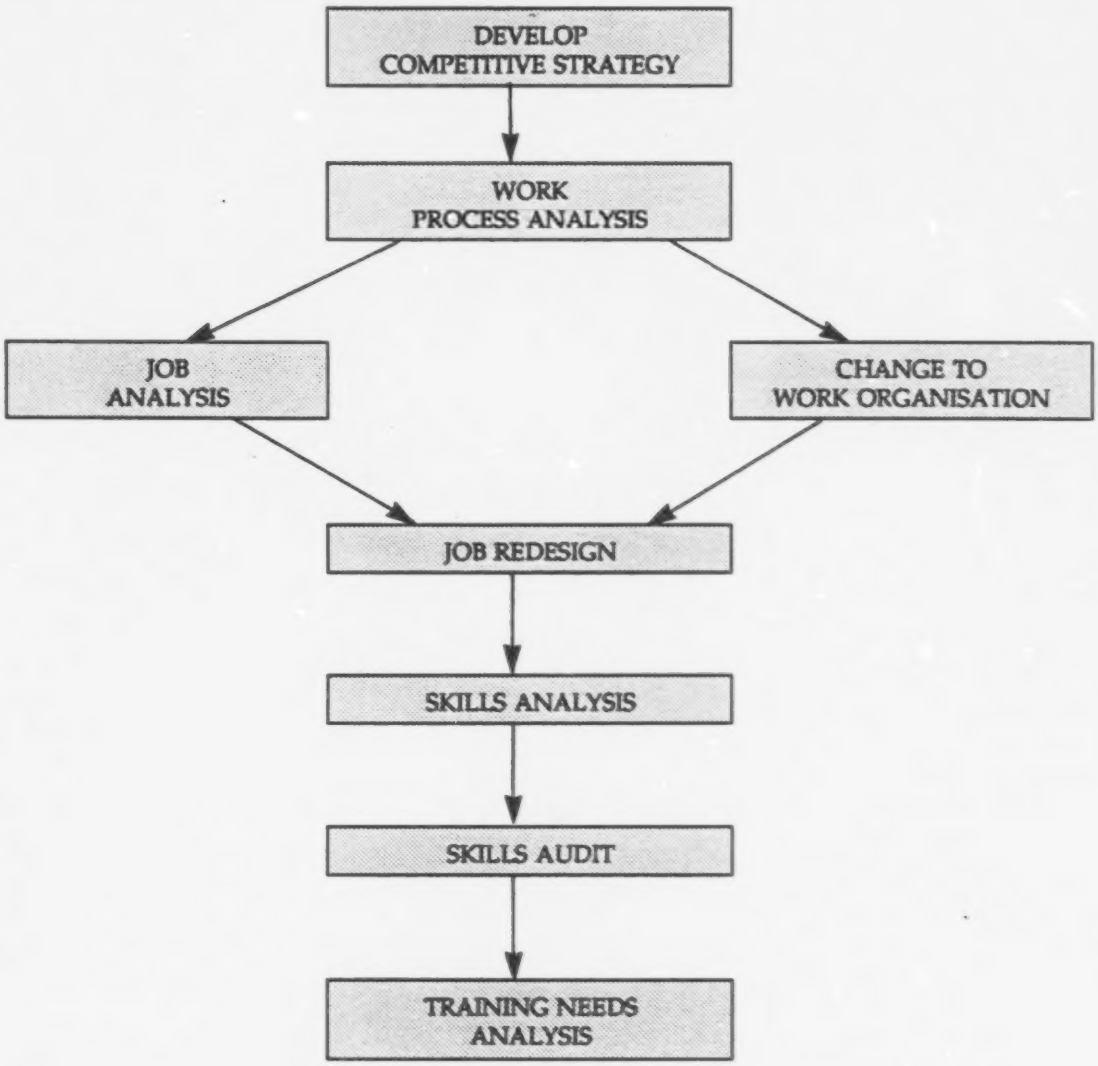
- Implements measures for dealing — Activity
- with hazardous events associated with electrical work. — Condition

Performance criteria

- Recognises and eliminates electrical hazards in workplace (e.g. risk of electric shock).
- Demonstrates ability to deal with chemical spills and identifies any associated first aid required.
- Recognises and demonstrates use of fire extinguishers to put out range of fires which can occur in workplace.
- Demonstrates technique for evacuating the workplace (e.g. fire evaluation procedures).
- Demonstrates method of freeing person receiving electrical shock.
- Demonstrates ability to assess treatment needed by victim of electrical shock.
- Demonstrates ability to manage electrical burns and other wounds.

Chapter three: Types of project

It is important that skills analysis and skills audit projects form an integral part of the competitive strategy of the enterprise. By themselves, they achieve very little. They should be linked with other initiatives such as job redesign and training needs analysis to achieve significant changes at the workplace. An example of how such projects which aim to achieve workplace reform can be linked together is shown in the following diagram.



Other steps could be added to the above flow chart. For example, award restructuring may need to be linked to job redesign. Also, establishment of a consultative committee to oversee the projects could occur as one of the earliest steps.

Each of these activities may result in immediate change. For example, job redesign could be implemented before skills analysis is undertaken, and training needs analysis could lead to the implementation of individual training plans and on-the-job training. Competitive strategies which involve workplace reform will vary from enterprise to enterprise, and may include any

combination of the above activities. To achieve the greatest change in the workplace however, all of these activities would be undertaken.

Any workplace reform process using a combination of all or some of the above activities should include the following preliminary steps:

- establish consultative committee;
- prepare project brief and/or project proposal;
- select a consultant or project officer;
- set climate for project.

Establishing a consultative committee and climate-setting are important ways of dealing with the highly 'political' and industrial relations environment often associated with any substantial program of workplace reform.

Descriptions of these steps are given in the following two chapters.

Workplace reform processes may conclude with the following steps:

- implement changes on trial basis;
- evaluate;
- fully implement.

Again, descriptions of these steps are given in the following chapters.

The remainder of this chapter is devoted to a brief description of each of the workplace reform activities listed above. In addition, specialised types of skills analysis and skills audit projects are described, namely:

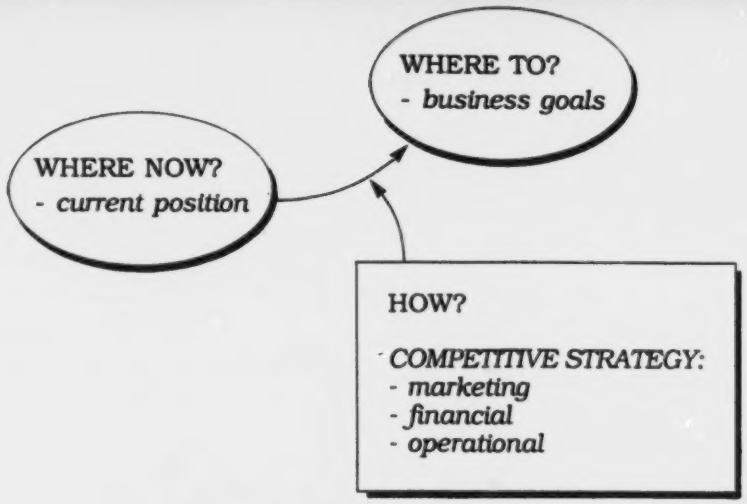
- developing competency standards; and
- assessment of competency.

Develop competitive strategy

Strategic planning involves three steps:

- analysis of the present state of business;
- setting of short-, medium- and long-term goals for the business;
- the planning of an integrated strategy that will enable the goals to be achieved.

These steps are illustrated below.



An analysis of the present state of business could include comparisons with benchmarks of the best practice in the world, because Australian industry is (or soon will be) competing with the best in the world.

The competitive strategy needs to be balanced and well integrated. For a manufacturing company, for example, the strategy could include three main aspects:

- marketing strategy;
- financial strategy;
- manufacturing/operational strategy (including technology and training).

Enterprises should not neglect any of the above major aspects. In addition, all elements in the strategy must support the business goals (see Samson 1991; Cope and Sherr 1991).

The operational strategy for the enterprise will provide the framework for all subsequent workplace reform activities, including skills analysis and skills audit projects.

The strategy should:

- be customer-oriented, giving due weight to costs, quality, service, flexibility (including fast responses to market changes and shorter lead times from order to delivery) and innovation;
- be formulated by, or in consultation with, those who must implement the strategies;
- set objectives that are finite, measurable and achievable within stated budget and time limits, so that progress may be monitored;
- be flexible enough to incorporate changes within the planned period.

Work process analysis

Work process analysis examines the technical sub-system of the work, including the workplace layout, jobs, technology, operations procedures, material flow and information flow. Technical issues and problems may need to be identified to provide a focus for the analysis. This technique is appropriate for all organisations including manufacturing and service organisations. Techniques include work study approaches and socio-technical systems analysis.

Process analysis involves outlining the process steps (usually with the help of flow charts and diagrams), identifying barriers to productivity, and problem-solving using systematic questioning and other types of analysis (see Hayton et al, pp.36-48). Outcomes include a description of existing and proposed technical sub-systems, work flow diagrams and workplace layout diagrams. This information contributes to work organisation change and job redesign.

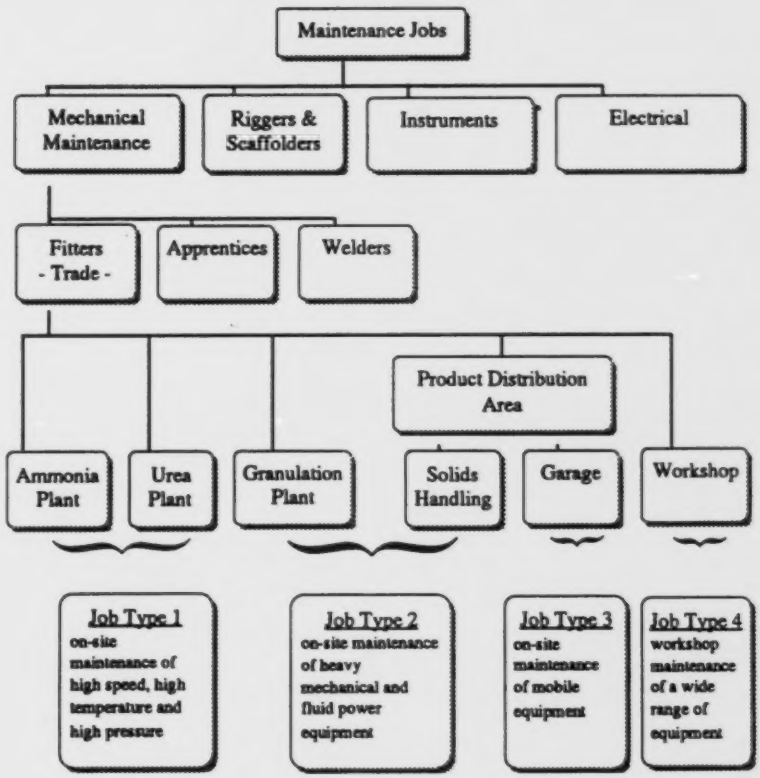
Job analysis

Job analysis examines jobs in terms of the duties and tasks to be performed by the person working in each job. When a range of job types is to be studied, the term *occupational analysis* is used. As well as looking at the duties and tasks currently performed, job analysis may consider likely future duties and tasks to be performed.

Outcomes of job analysis and occupational analysis include:

- a task inventory (a listing of all the tasks to be performed, and usually grouped into duties);
- a job description (a description of the main duties to be performed, and may include a statement of the responsibility and authority of the job and an outline of the abilities required of the person performing the job);
- an occupational/job tree or job structure (a diagram that indicates the jobs which have some similarity within an occupation - see box below).

Example of job structure/job tree from a single enterprise job analysis:

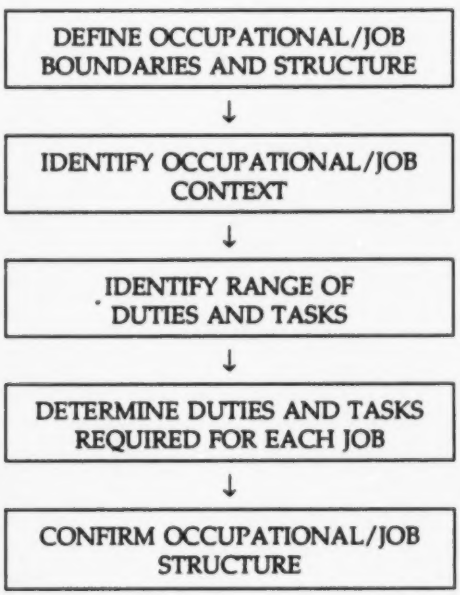


The techniques of job analysis may involve one or more of the data collection methods discussed in Chapter 6. The main approaches include:

- organisational records;
- interviews;
- questionnaires;
- observation;
- group process methods.

While the data collection approach may be similar to that used for a skills audit or skills analysis, the focus is different. For a *job analysis* the key question may be: "What are the duties and tasks that you perform in your job?" whereas for a *skills analysis* the key question may be: "What knowledge, skills and attitudes are required in your job?"

An occupational analysis or job analysis may involve five steps as shown in the diagram below.



Steps in an occupational/job analysis (from Hayton et al 1988, p.8)

Change to work organisation

Changes to work organisation should be considered after the development of the enterprise's competitive strategy and work process analysis. This activity could include job redesign and should be undertaken by a representative group from the shop floor, middle management and senior management. The socio-technical systems approach developed by Fred Emery (1969).

- the participation of the people affected - unions, workers and managers - in planning and implementing changes;

- the integration of work process analysis, work organisation change, job redesign and analysis of the social aspects of the jobs involved (see Emery 1969; Weisbord 1987).

In order to remain competitive in terms of price, quality, service, flexibility and innovation, enterprises are moving away from approaches and structures based on the concepts of Taylor and Ford, towards approaches and structures involving:

- flatter management structure;
- skill broadening with less specialisation;
- semi-autonomous teams.

A typical example of changes occurring in manufacturing is the move from production departments based on manufacturing processes with supporting service departments, to work teams based on product type. The work teams are responsible for most service functions such as quality control, machine maintenance and training (see Hayton and Loveder 1990; Hayton 1990).

Job redesign

Changes to work organisation will affect the design of each job in the organisation. Every job may need to be redesigned to fit the restructured work organisation.

Job redesign should be based on the outcomes of work organisation changes, work process analysis and job analysis. In the past, job design and redesign often was based only on the technical aspects of production or operational processes, such as 'minimum cycle time' for a task and 'optimum person-machine interaction'. In addition to technical aspects, job design needs to take account of human aspects, such as job satisfaction, range of skills required, and level of autonomy of the worker.

The job redesign process should be participative and may involve separate small groups for each job or job group.

The following principles of job redesign have been suggested by Peter Higgins (1986) and others:

- the concept of closure, where a team of workers completes a whole series of tasks (e.g. the assembly of a car component), rather than performing one small repetitive task;
- the inclusion of control and monitoring tasks, whereby workers are delegated the responsibility for controlling the work-flow and checking production both quantitatively and qualitatively;
- the opportunity for task variety, where workers are given the choice to move between tasks;
- minimum control by management of production or operation objectives ambiguous, so that the operators may choose the details of how the job is performed;
- self-regulation, where workers have the freedom to choose how they accomplish their production objectives; and are offered training in the technical and team skills needed for a self-regulation approach;
- co-operative job structures which encourage employees to use the widest possible range of skills from within the same work group;
- rapid feedback on performance;

- responsibility for own tools, equipment and territory;
- the monitoring and control of errors, waste and variation must be as close to their point of source as possible; and
- reduction of errors, waste and variation to reduce the level of supervision and control.

Skills analysis

A skills analysis is a systematic process which identifies the skills (including knowledge, manual skills and attitudes) or competencies required for a particular job. Skills analysis information may be used for a skills audit, a training needs analysis, or even job redesign. Analysis of competencies may be used instead of skills analysis:

- development of competency standards;
- development of competency-based training curricula; and
- development of competency-based assessment instruments.

The usual outcomes of a skills analysis project include:

- a skills inventory or skills register;
- a skills matrix; and
- a set of competency standards.

Each is described in Chapter 5 and descriptions of the methods of skills analysis are given in Chapters 4 and 5. An example of a skills register is given in the box below.

Example of an extract from a skills register

		Job Positions		
D:	Non-routine testing	Laboratory Tester	Laboratory Assistant	Paint Technician
D1	To develop new testing procedures for the evaluation of new or existing products	N	N	Y
D2	Conduct comparative tests on similar materials/products	N	Y	Y
D3	Recommend, adjust and trial adjustments to out-of-specification batches	Y	Y	Y
D4	Conduct accelerated testing e.g. salt spray, humidity	N	Y	Y
D5	Conduct testing to customer specification	N	Y	Y
D6	Manufacture samples of paints, solvents, resins etc. from raw materials	Y	Y	Y

(Note: Y = skill required;
N = skill not required)

Developing competency standards

Competency standards for each occupation are being developed in Australia to provide a basis for competency-based training and assessment. The standards will be useful for both off-the-job (such as at a TAFE college or a skills centre) and on-the-job training.

The standards are being developed by *competency standards bodies* which have been recognised by the National Training Board. Competency standards bodies accepted within the industry, have the support of the industrial parties, and have expertise (or access to expertise) in competency standards development. Many of the industry training committees/councils have already been accepted as competency standards bodies.

As discussed in Chapter 2, the development of competency standards may be viewed as a specialised form of skills analysis. Competency standards may be developed after a routine skills analysis has been undertaken. For example, standards may be developed after a skills analysis by:

- listing all the tasks and skills required for the job;
- considering all tasks and skills which are *outcomes* rather than *processes;*
- determining, for each task or skill outcome, the standard of performance required; and
- identifying, for each, the context and conditions under which the performance occurs.

The outcome is a set of competency standards, which is described in Chapter 5.

Alternatively, a skills analysis may be undertaken following the development of national competency standards. The skills analysis should build on the information given by the competency standards, and should identify underpinning knowledge, skills, abilities and attitudes required for each element of competency. Curriculum development for vocational education and training programs should be based on the competency standards and skills analysis information.

Skills audit

As stated in Chapter 2, we define the skills audit as a systematic process which identifies the skills or competencies held by an individual or group. Again, the term *skills* is used here in its broader sense to include knowledge, manual skills and attitudes. However, most skills audits are restricted to measurement of knowledge and manual skills because of the difficulties involved in validly and reliably measuring attitudes.

The main outcomes of a skills audit project may include:

- skills profile (for an individual or group);
- matches of individuals with particular jobs.

The methods and outcomes of skills audits are described in Chapters 4 and 5.

If competency standards for the job exist, the skills audit may involve a process of competency assessment. Information on competency assessment is given by Foyster (1991) and Thomson (1991).

Training needs analysis

In a traditional training needs analysis, the techniques of job analysis, skills analysis and skills audit are combined in order to identify differences between what is required in the job and what is

possessed by an individual or group. Knowledge, manual skills and attitudes, or competencies, may be analysed.

The methods of training needs analysis are similar to those used for job analysis, skills analysis and skills audit. A wide range of methods is used, including observation methods, interviews, questionnaires and group process methods.

The outcomes of a training needs analysis include:

- specification of training needs;
- specification of non-training responses, such as redeployment or job redesign.

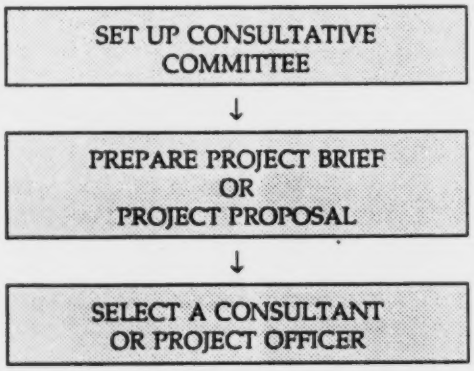
Training needs could be developed into training plans for individuals or groups. Development of the curricula for education and training programs is usually undertaken as a separate project.

Chapter four: Planning the skills project

Skills analysis and skills audit projects usually involve the following key steps at the planning stage:

- set up consultative committee;
- prepare project brief or project proposal;
- select a consultant or project officer.

These steps are also applicable to other workplace reform processes and each is vital to the ultimate success of workplace reform. Substantial workplace reform is usually a complex process involving difficult technical and human issues. Good planning, based on some sound principles as described here, can greatly increase the chances of success. Other steps in the planning process may be involved but a simplified sequence is shown in the following flow chart:



In this chapter these three steps are discussed, while the following chapter deals with the steps involved in conducting the skills project, starting with *climate setting* and finishing with *reporting*. For simplicity the term *skills project* is used in these chapters to include both skills analysis and skills audit projects.

Set up consultative committee

In the past using consultative committees has proved useful and beneficial for most types of workplace reform activity, particularly skills projects. The consultative committee is comprised of representatives of the major interested parties and work sections involved in the reform process. Its terms of reference are normally formulated so that it acts to:

- provide advice;
- manage the project;
- win broad support for the project;
- consider the interests of all parties;
- authorise progress payments to the consultant (if applicable).

In some cases the consultative committee also may develop the project brief and select the consultant.

The consultative committee may be known by many other names, such as project committee, advisory committee or steering committee. The name chosen may indicate a different emphasis in the role of the committee.

To ensure that the committee is effective, the following guidelines should be applied:

- its composition must be balanced, with representatives of all major interested parties and workforce sections;
- representatives should have the confidence of, and interact effectively with, the people whom they represent;
- the committee should be involved at all key stages of the project.

The following is a brief discussion of each of these guidelines.

Its composition must be balanced

The consultative committee should be limited to a manageable size but at the same time be representative. The major interested parties should be represented and include:

- senior management;
- middle management;
- employees (each main work section, major ethnic groups and women and men);
- union(s);
- professional body (if applicable).

To strengthen the advisory role of the committee, a workplace reform expert and the consultant or project officer should also be included.

Representatives should interact effectively

The function of each work section representative is to contribute and receive information about the process being undertaken (see Windsor 1991). The process itself should allow resources and time for representatives to seek the views of those they represent, and to report back the outcomes of each meeting.

To perform this function effectively, representatives may need training in the consultative process. The skills required by representatives for discussing options for workplace reform and interacting with their work section colleagues will probably be new for most representatives.

Involvement at all key stages

The consultative committee should be involved in the project at all its key stages including both the early planning stages and the final implementation stages. The following tasks are those which may be performed by the committee:

- development of project brief;
- selection of consultant or project officer;
- refinement of the research design at the start of the project;

- questionnaire design;
- comment on interim reports and final draft reports;
- authorisation of progress payments;
- monitoring of implementation of workplace reforms, including job redesign and training.

Prepare project brief or project proposal

A *project brief* or *project specification* is a statement specifying the important features of a proposed workplace research and reform project as well as the way in which it should be conducted. The brief is usually prepared by the enterprise's consultative committee or sponsoring organisation for the consultant or project officer.

On the other hand, a *project proposal*, while similar to a project brief, is prepared by the person or organisation proposing to undertake the research project. Its purpose is either:

- to provide a tender for the research project; or
- to gain in-house approval to start the research project and release funding.

The contents of a project brief and a project proposal largely overlap. A project brief normally should include:

a title	This should be clear and concise, conveying the main features of the project.
a statement of the issues	The problem or issues of concern should be stated along with the background to the proposed project. Future research could also be foreshadowed.
the project objectives and expected outcomes	The objectives should be clear and concise. The expected outcomes should describe the tangible outcomes of the project (e.g. 'a 50 page report and skills database'). The objectives should be achievable using the proposed methodology.
methodology	The proposed research design and research methods should be described.
timetable	Starting and finishing dates as well as critical dates for completion of each stage of the project should be specified.
funding/budget	An indication of the funds available for the project, and perhaps a budget showing amounts for the main categories of expenditure, should be given.
reporting	There should be a statement indicating to whom (an individual or a committee) the consultant or project officer will report, and a description of the types of report (interim reports, final report, summary report) required.

- **tendering requirements (if applicable)** — If tenders are being sought for the project, the brief should list the required content of proposals and give a closing date, address and contact phone number.

Project proposals should include the same items for project briefs as listed above, except for the last two items. Greater detail on the proposed methodology, timetable and budget should be given. In addition, project proposals submitted for tendering could include the following:

- details of the tenderer and/or the tenderer's organisation;
- previous clients and research projects completed; and
- names and addresses of referees.

The tables and charts prepared for the proposal relating to methodology, timetable and budget should provide the basis for monitoring and control of the project once it is underway.

Selecting a consultant or project officer

In planning a skills project, the options available are:

- do the study yourself;
- do part of the study yourself, with other parts undertaken by colleagues or consultants;
- commission a consultant to undertake the study;
- divide the study into parts and commission consultants to do each part.

Some areas of the proposed research project may be fairly skill intensive while other parts may be more labour intensive. It may often prove cost-efficient to commission the labour intensive sections of the study to a consultant. For example, preparing envelopes for a mail survey usually can be performed more efficiently by a specialised mail service consultant.

Consideration should be given to commissioning consultants when either time or expertise is not available in-house to undertake part or all of the study.

It is essential that the duties required of the consultant be clearly specified in the project brief and/or at the first project committee meeting. Early clarification will reduce misunderstanding and potential conflicts during the latter stages of the project.

The process of selecting consultants to undertake all (or a major part) of a workforce study should involve the following steps:

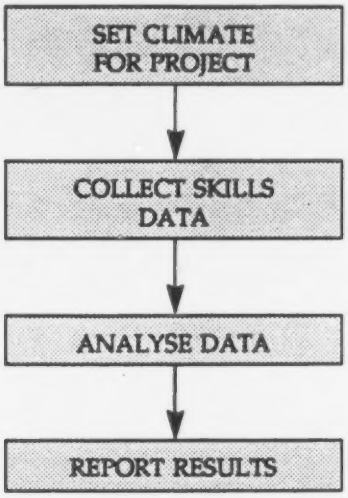
- prepare project brief;
- establish selection criteria;
- obtain expressions of interest;
- short-list the applicants;
- call for detailed submissions;
- examine submissions;

- interview candidates;
- make the final selection.

For small projects the selection process may be shortened by omitting some steps. For example, the third and fourth steps could be omitted, and interviews may not be necessary.

Chapter five: Conducting the skills project

To conduct the skills analysis or skills audit project, the consultant or project officer needs to undertake the steps shown in the following flow chart.



In the planning stages of the project, these steps are equally applicable to other workplace reform projects and each may be divided into two or more activities. For example, for a skills audit project the data collection step could involve two activities: a group process to develop a register of skills; and a questionnaire survey to identify the skills possessed by individuals.

The following describes each of the four major steps in detail.

Set climate for project

The critical early stages of the project should focus on *climate setting* in order to gain understanding and co-operation for the project processes. This involves three elements:

- working with the consultative committee;
- meeting with key individuals;
- briefing the whole workforce.

Briefing the workforce should be achieved through meetings (not memos) during which it is explained:

- the aims of the project;
- what people can expect and who will be involved;
- how employees can participate;
- the expected project outcomes.

The briefing should be followed by written information. In multilingual workplaces the information should be provided in relevant languages.

The briefing sessions are the best way to dispel anxieties often associated with workplace reform processes. If briefing sessions are not held, incorrect information could be generated through the organisation's 'grapevine'.

Experience has shown that when the planning and climate-setting steps are undertaken as described here a receptive climate and wide support for the project are established. The keys to success are:

- linking the skills project to a clear competitive strategy;
- careful planning and consultation;
- involvement of the workforce through the consultative committee;
- workforce briefing sessions at the beginning of the project.

Collect skills data

We now come to the heart of the skills project - the data collection step. In this section we will describe:

- the main methods of data collection and their relative merits;
- the skills list;
- data collection methods for:
  - skills analysis;
  - development of competency standards;
  - skills audits;
  - competency assessment.

Methods of data collection

The different techniques of data collection for skills projects have been grouped under the following categories:

- organisational records;
- observation methods;
- group process methods;
- interview methods;
- questionnaire-based methods.

Each method has advantages and disadvantages, so the method that best suits the particular project should be selected. Also, a combination of two or three methods is often very effective. Examples of selection and combination of techniques are given later in this section. The project officer or consultant should be experienced in the technique chosen, or at least a member of the project team should have this expertise.

Organisational records

Organisational records provide a good starting point for a project being undertaken for any single organisation. Whether the project is being conducted by an internal training specialist or by an

external consultant, something has triggered the decision to conduct a study. Much of the important information already could be available in report or chart format. Sources of information include organisation management structure charts, quality control records, departmental logs, and job descriptions.

A summary of the strengths and weaknesses of organisational records is given in the following box. Further information on organisational records (also termed *descriptive methods*) is given in *Training for Australian industry* (Hayton et al 1988, p.163-164).

Organisational records

Strengths

- inexpensive, as a source of information is readily available
- provide necessary background knowledge

Weaknesses

- information may be out-of-date
- may only give the subjective view of the person who prepared the document
- information in the form of prose may require content analysis skills

Observation methods

Observation methods include two main techniques: formal observation and task analysis. Informal observation will be an essential component of almost any study and will normally be combined with any of the other techniques described to ensure that a realistic assessment gained.

In observing any job or occupation some parameters concerning the component tasks are rapidly established. How varied are they? How much time is spent on each? Are most tasks single-person tasks or do people usually work in pairs or in teams? Whilst this does not give us definitive data, it provides us with a 'feel' for the job and its tasks. This ensures that the relevant questions are asked at a later stage.

Formal observation methods such as task analysis and method study can provide accurate information and are particularly useful for studying operator jobs. If these techniques are to be used it is necessary to explain the purpose to the operators concerned and seek their cooperation first.

A summary of the strengths and weaknesses of observation methods is given in the following box. Information on task analysis is provided by Annet and Duncan (1969), and information on method study is given in ILO (1979).

Observation methods

Strengths

- economical - for small numbers
- may be unobtrusive
- minimise interruption
- can obtain highly relevant data

Weaknesses

- requires skilled person to observe and objectively record complex workplace activity
- not suitable for identifying the underpinning knowledge and attributes required for the job.

Group process methods

Group process methods are very useful and widely used methods for skills projects, particularly skills analysis (including development of competency standards). They are based on the technique of group brainstorming and usually have two phases:

- idea generation; and
- idea evaluation.

Since the dynamics of groups are not always conducive to the free flow of ideas, skilled *group leaders* or *facilitators* are usually required. The facilitator's role is to make it easier for group members to contribute their ideas, a role which may involve protecting and encouraging shy or reticent members, subtly curbing over-zealous or long-winded members and summarising diverse opinions.

Experience in group processes which encourage the development of those interpersonal skills necessary for successful facilitation is essential for the researcher undertaking the project. Essential characteristics of an effective facilitator are open-mindedness, tact, understanding of group dynamics, good humour and the ability to synthesise and summarise information.

Usually group methods give detailed qualitative data and can generate creative solutions to problems. However, they can be time-consuming if not well managed and can yield biased outcomes if some group members dominate proceedings. The main strengths and weaknesses are summarised in the following box. Further information on group process methods is given in Anderson and Jones (1986) and Hayton et al (1988).

Group process methods

Strengths

- fast
- creative outcomes
- inexpensive
- participative
- analysis and evaluation of data performed by group

Weaknesses

- can be time consuming (for a large group)
- difficult to control
- inconsistent results
- qualitative rather than quantitative data
- limited by collective knowledge of group

The main group process methods used in skills analysis projects include:

- brainstorming;
- nominal group technique;
- DACUM;
- functional analysis.

Brainstorming is a technique of small group discussion designed to encourage an unrestricted flow of ideas. Often members of a group lack the confidence to put forward good ideas while others are able to impose their point-of-view irrespective of its value. Brainstorming is designed to overcome this problem by removing inhibiting factors and improving interaction and contribution.

Brainstorming is a process which encourages group participation, but it does require a group leader skilled in the technique. The issues to be considered are clearly defined by the group and a secretary is appointed. Since brainstorming operates on the principle that quantity is a prerequisite of quality, ALL ideas generated are recorded.

Criticism or debate on contributions is forbidden and the group leader/facilitator attempts to encourage lateral thinking and development of previous ideas. Extreme suggestions are welcomed in order to maximise the number of ideas; adverse judgements are suppressed. At the end of the session the group may choose to evaluate the outcomes by prioritising, combining or editing the contributions.

This technique works most effectively with a group of 5 to 12 people and is ideally suited to consideration of issues like job performance and job design deficiencies, quality control and problem-solving.

Although this technique produces inconsistent results, brainstorming usually elicits more ideas than when individuals work alone. Successful results cannot be guaranteed by this method, especially if group members do not have suitable ideas. With knowledgeable and experienced people, however, creative outcomes can be produced within very short periods of time (e.g. one hour or less). Furthermore, it is an inexpensive technique when used in-house or where the cost of getting the group together is minimal. The group leader should be trained or at least have prior experience in brainstorming.

Some tips for brainstorming:

- write up the issue or problem being considered;
- work in a semicircle;
- set a time limit and target, e.g. thirty ideas in thirty minutes;
- suppress 'killer' phrases: e.g. 'it won't work', 'we've tried that before', or any other hint of criticism;
- praise quantity rather than quality;
- don't settle for just the obvious ideas, seek out the wild ones;
- encourage 'piggy-backing', i.e. the improvement, extension and modification of a previous suggestion;
- record every contribution. Failure to do so will imply a criticism and may stifle further ideas from that member;
- when ideas have dried up, move on to evaluation.

Nominal group technique is a structured form of brainstorming which involves individual work prior to group members sharing their ideas. After the group has decided on the topic, the facilitator forbids conversation while each member writes down ideas. Discussion is actively curtailed to prevent any prejudgment of an idea or group pressure inhibiting any individual's contribution.

After a short time (say 10-15 minutes), each member then presents an idea in turn while the facilitator records these on a flip-chart visible to the whole group. Some general points to be observed during this phase are:

- ideas are presented in brief words or phrases;
- ideas are taken one at a time from each member;
- individual member's ideas are not altered;
- when a member runs out of ideas, they just say 'pass'. They can re-enter later, if they think of a new idea;
- arguments are avoided by allowing no discussion in this phase;
- 'hitch-hiking' or 'piggy-backing' onto ideas should be encouraged;

- no criticism is allowed.

With the agreement of the group the items listed are then merged, simplified or organised as needed. At this stage, discussion should be limited to clarification of each idea.

Next, preliminary voting takes place to establish a priority within the items. If anonymity is an issue, this can be done privately on index cards and shuffled.

Discussion on the items can take place for further clarification, support or disagreement from individual members as well as further additions and merging. Ideas developed from other people's ideas and generation of new ideas should be actively encouraged. A final vote on the cumulation of ideas is taken. Members vote individually, ranking items according to their own preference. These votes are then collated to produce a group decision.

The nominal group technique is preferred to simple brainstorming in those situations where members are inhibited and are unable to offer creative solutions because of group pressures or a limited perspective..

DACUM is an acronym for *design (or develop) a curriculum*. This is another group-centred approach which uses brainstorming to produce a skills inventory or skills register for a given occupation or range of jobs. It works best in a group of 8 to 14 participants, producing initial information in a one to three day meeting (see WA Department of TAFE, 1986). The shortened version of DACUM, taking a half to one day, is sometimes termed *modified DACUM* (see Curtain 1989).

A DACUM conference usually consists of five phases:

1. Introduction.

2. Clarification of the occupation/jobs to be analysed.

3. Identification of general areas of competence.

4. Identification of tasks within each occupation/job.

5. Analysis of data.

The technique requires a skilled leader, a secretary or recorder and a quiet venue, free from interruptions. Participants should be carefully selected on the basis of their occupational knowledge, open-mindedness, industry background and availability for the duration of the process.

All competencies identified are written on index cards by the recorder and placed in sequence on a wall facing the group. After the group process and during the analysis, stage the contributions are given to industry specialists for checking and/or to vocational teachers for comment and an estimate of the instruction time required to cover each competency. The competencies are then regrouped into the order that they would normally be found in a job situation. If a training program is to be developed, a sequence of topics is developed and submitted to the training provider.

The modified DACUM technique is very widely used for skills analysis projects in Australia. Also, it is often used as the initial step in a skills audit project.

Functional analysis is a group process technique which was developed in the UK specially for developing competency standards. It is now being used in Australia for the same purpose. A group of people familiar with the occupation to be analysed meets to develop standards with the help of a facilitator. Features which distinguish this technique from other group process techniques are:

- a 'top down' method which starts from the key purpose - a single clear statement of the function of the job or occupation - then progressively breaking this down into roles, units, elements and performance criteria.

- an 'outcome' approach which describes functions in terms of outcomes rather than the particular methods used.

At each stage in the analysis the group is asked to prepare statements which break down the function statement from the previous stage. Each statement must have an active verb, the object of the verb and (if necessary) a condition. For example, a suitable statement of the key purpose of the occupation of retail sales (supermarket) could be:

make household goods available for sale to domestic customers.

This statement has the three components as follows:

- **active verb**:. make available for sale

- **object**: household goods

- **condition/context**: to domestic customers.

Various rules may be used by the group to assist in the analysis of each stage. These are listed in an article by Bob Mansfield entitled *Functional analysis: a personal approach*, (1989). This article also gives further details on the technique of functional analysis.

Interview methods

Interview methods are the most easily applied skills project methodology. However, both structured and unstructured interview methods require highly skilled interviewers to obtain valid and reliable information. The informal, unstructured one-to-one interview is useful for obtaining information quickly and inexpensively, provided that the interviewees are few in number and readily accessible. Formal, structured interviews involving a large number of geographically dispersed respondents, can be expensive and time-consuming. Telephone interviewing may be a less expensive alternative, but requires special interviewer skills. Also, telephone interviews are normally must be restricted to a limited number of questions.

The frequently used *unstructured interview* is characterised by the use of open-ended questions, non-judgemental feedback and prompting. It is employed when the researcher needs to get quick first-hand skills data, and background information on sensitive issues such as attitudes, personalities and industrial relations matters. The advantage of the unstructured interview approach is its ability to explore broad issues and to provide a situation where issues can be explored in a non-directive, non-threatening manner. The interviewer should be able to create a climate in which the respondent freely offers candid information.

The main disadvantages of the unstructured interview compared with other techniques, relate to its:

- generation of opinion rather than fact;

- lack of consistency when applied to larger populations.

To minimise potential difficulties, the researcher can use the unstructured interview in conjunction with a more rigorous method, and in addition, ensure that interviewers are trained to a consistent standard.

The *structured interview* has the ability to give more consistent outcomes than its unstructured

counterpart. Responses to a structured interview normally will be easier to quantify and interpret, since uniform questions tend to yield a narrower range of responses. Its drawbacks are that:

- it usually takes longer to prepare;
- it may fail to yield the full range of possible outcomes.

While precautions should be taken to 'debug' questions (e.g. remove ambiguity, explain terminology), the technique nevertheless allows the interviewer to deal with respondents' difficulties.

The *telephone interview* is most cost-effective when respondents are geographically dispersed or difficult to contact during normal business hours. It is more suited to non-complex studies or as a follow-up on a previous face-to-face interview or mail survey. Its advantages include: savings on travel costs; it is more personal than a mail survey but less confronting than a face-to-face interview; and speed. It will usually produce a better response rate than a mail survey and may cost no extra if the numbers interviewed are small (say less than 50). Its drawbacks are: it is harder to gain respondents' cooperation over the telephone; it is more difficult to ensure the availability of the chosen respondent (may require several return calls) and explanations may take longer.

A summary of the strengths and weaknesses of interview methods generally is given in the following box. Further information on interview techniques is given in *Training for Australian industry* (Hayton et al 1988).

Interview methods

Strengths
- Easier to gain respondents' confidence
- Questions can be clarified
- Feedback can be given immediately
- More personal
- Suitable for examining sensitive subjects

Weaknesses
- Time consuming
- Lack of consistency between interviewers
- Can get off the track
- Opinions and feelings instead of facts

Questionnaire-based methods

Questionnaire-based methods are commonly used in skills projects, particularly skills audits. These methods are relatively economical for large organisations with many employees to be surveyed. However, much time and expertise are required to develop good questionnaires, and the method normally would not be suitable for low literacy and non-English speaking respondents.

In questionnaire-based methods, individuals provide written answers to specific questions contained in the questionnaire. The questionnaire is distributed to each individual by the researcher or by post, and the completed questionnaire is collected by the researcher or returned by post. The key feature of these methods is that the questionnaire is designed for self-completion by individual respondents without the presence of the researcher.

For skills projects, when workers within the work section or occupation under analysis are normally surveyed, the questionnaire may contain one or more of five main sections:

1. questions concerned with the organisation (e.g. numbers of employees, main products/services, training policies);

2. questions concerned with the individual respondent (e.g. name, age, gender, education and training undertaken, career path, present salary);

3. questions concerned with the individual respondent's present job (e.g. main job functions, duties and tasks performed, task frequency or relative time spent);

4. questions concerned with the skills or competencies required for the present job;

5. questions concerned with the skills or competencies possessed by the respondent.

Section 1 would be included only if more than one organisation is being surveyed. Section 2 would be useful for most skills projects. Section 3 would be included only if job analysis is required. Section 4 would be included only if a skills analysis is required, and Section 5 included only if a skills audit is required. Sections 4 and 5 could comprise either a list of skills or competencies with a yes/no (or other rating scale) response required for each skill or competency. Alternatively, open-ended questions could be used in these sections. Skills listings are discussed later in this chapter.

When conducting questionnaire-based surveys, the following should be kept in mind:

- care should be taken to define accurately the section of the workforce to be surveyed;
- if a sample of the workforce is to be surveyed, well-designed methods should be used to obtain a sample which adequately represents the population;
- the expected information outcomes of the survey should be identified beforehand to provide a basis for design of the questionnaire;
- an explicit rationale is required for each item in the questionnaire. This should cover *why* the question will be asked and *how* the information will be reported;
- to help maximise the response rate, the number of questions should be as few as possible;
- the questions should be ordered logically;
- leading questions and value-laden wording should be avoided;
- the questionnaire should be *pretested* by trialing a draft version of the questionnaire within a small cross-section of the sample;
- a covering letter and a prepaid return envelope should be used for mail surveys;
- experienced and trained editors and coders (people who convert responses into number or letter codes) should be used to process completed questionnaires.

Questionnaire-based methods have a number of strengths and weaknesses which are highlighted in the following box. Further information on questionnaire-based methods and survey methodology is given in Warwick and Lininger (1975), Bradburn et al (1979) and Hayton et al (1988).

Questionnaire-based methods

Strengths

- cost-effective for large numbers of respondents
- consistent interpretation of questions
- data is easy to analyse
- high level of confidentiality possible

Weaknesses

- samples are often not representative
- rates of return often low
- usually does not allow for clarification of question
- unsuitable for respondents with low literacy skills

A number of specific techniques of job analysis and skills analysis exist which are based on questionnaire surveys. The specific techniques are usually supported by research and specialised literature. They include:

- CODAP - this stands for Comprehensive Occupational Data Analysis Programs. It is a set of about 50 computer programs developed by the US Air Force for analysing large amounts of detailed job analysis data. It is also a methodology in which a task inventory is constructed and a survey of job incumbents undertaken (see Hayton 1988a);
- Work Performance Survey System (WPSS) - was designed primarily to produce information that managers can use to make effective human resource-planning and administrative decisions and, secondly, to improve and facilitate the job inventory process. This is achieved through obtaining quantitative data about those tasks completed directly by the job incumbent by means of tailor-made WPSS questionnaires and computer analysed (see McCormick 1979 and Gael 1983);
- Position Analysis Questionnaire (PAQ) is a structured job analysis questionnaire that analyses jobs in terms of 187 distinct worker-oriented job elements. The questionnaire is typically administered by a personnel officer, job supervisor or job analyst and provides ratings of aptitude (such as verbal comprehension, intelligence and manual dexterity) and situational attributes (temperament) for potential job candidates or encumbents (see McCormick 1979);
- Job Components Inventory is a job analysis technique that uses five principal components to measure a person's suitability for various jobs, including: the ability to use tools and equipment, perceptual and physical abilities, mathematical abilities, communication and decision-making responsibilities. The technique is useful for curriculum development, careers guidance and broad-based training (see Banks et al 1983);

- Functional Job Analysis is a questionnaire-based job analysis technique which identifies skill levels, duties and tasks within a specific job. Functional job analysis is similar to task analysis in that they both describe particular acitivities or methods, but unlike task analysis (which is essentially an observation method) it relies upon a questionnaire method (see Fine 1973 and Weissman 1981).

Selection of technique

The selection of the data collection technique for any particular skills analysis or skills audit project should be based on two key principles:

- the technique best suited to the particular project should be selected;
- a combination of two or more techniques should provide more reliable information.

Consultants and researchers may have expertise and experience in only one technique, and may be tempted to apply the one data collection method to all types of skills project. Guidance in the systematic selection of the most appropriate technique is provided by Hayton et al (1988, pp.135-143).

Combinations of two or more techniques have provided reliable skills information. For example, a skills analysis of laboratory staff in the paint manufacturing industry started with informal observation of laboratory work, followed by a one day modified DACUM (group process) at each workplace. A skills audit of mechanical maintenance staff involved informal observation, interviews and a questionnaire survey. A skills analysis of TAFE teachers involved a group process, observation and questionnaire survey of a sample of TAFE teachers.

The skills list

Whichever data collection method is selected, the objective of this phase of the project is to:

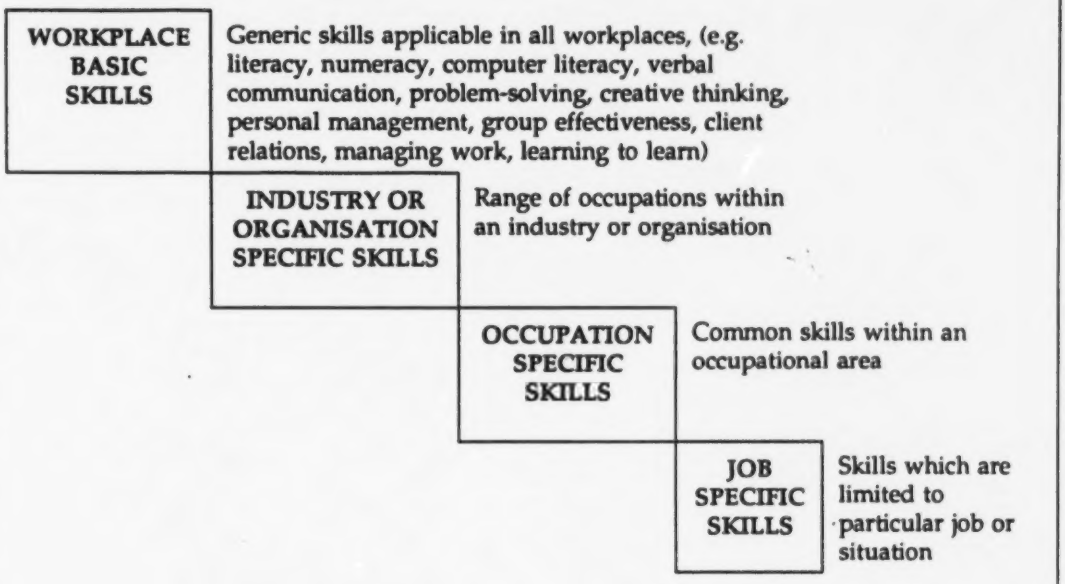
- develop a list of skills or competencies required (or skills possessed); or
- obtain a set of ratings for the listed skills or competencies.

In both cases the list of skills or competencies should be:

- comprehensive, covering all the important skills required for the job(s), including both technical and non-technical skills;
- balanced and avoiding gender bias, giving due weight to each skill group;
- arranged in a logical order and grouped under appropriate headings (e.g. 'elements of competency' listed for each 'unit of competency').

For the first objective, the skills or competencies required could be generated from relevant existing lists with skills or competencies specific to the job being added. Various check lists can be used to ensure that the skills list is comprehensive. An example of one such framework is given in the box *categories of skills*.

Categories of skills:


WORKPLACE BASIC SKILLS
Generic skills applicable in all workplaces, (e.g. literacy, numeracy, computer literacy, verbal communication, problem-solving, creative thinking, personal management, group effectiveness, client relations, managing work, learning to learn)
INDUSTRY OR ORGANISATION SPECIFIC SKILLS
Range of occupations within an industry or organisation
OCCUPATION SPECIFIC SKILLS
Common skills within an occupational area
JOB SPECIFIC SKILLS
Skills which are limited to particular job or situation

To give balance (and help avoid gender bias) to the list of skills or competencies, Kim Windsor (1991) suggests using a simple breakdown which identifies skills under three main headings:

- technical skills (including equipment related skills, caring skills and manual dexterity);
- organising and coordinating skills (including supervisory skills, team-work coordination and rearranging and reprioritising of tasks);
- communication and interpersonal skills (including interaction with customers, communicating within teams, creativity, presentation skills, tact and diplomacy).

It may be important in the skills project to identify the skills that are emerging and becoming increasingly important in new integrated types of work organisation.

How many skills or competencies should be listed for each job? The answer depends on the type of job and the purpose of the skills project, but for most jobs over 100 skills or competencies would need to be listed to adequately describe the job and identify training needs. Many of the skills or competencies should be common to other jobs in the industry, and many should be 'core skills' applicable to all workplaces.

Caution needs to be exercised in the way in which a skills list is used. The list is an imperfect representation of the job or the skills of the person doing the job. The skills list assumes that jobs can be fragmented, but competent job performance requires an integrated approach. This aspect needs to be considered, in addition to the skills list, when assessing job competence and designing education and training programs.

The skills project questionnaire normally asks one of the following core questions:

- *For each of the following skills/competencies indicate which are required for your job* (skills analysis); or
- *For each of the following skills/competencies indicate those that you possess* (skills audit).

Alongside each skill/competency there should be a rating scale. The most common scale is simply YES/NO. Many other scales can be used. Examples include:

- None - low - medium - high (level of skill);
- Not used - low - medium - high (frequency of use); or
- 0 - 1 - 2 - 3 - 4 - 5 - 6 - 7 (contribution to job).

The following box gives an extract from a skills analysis and skills audit questionnaire which was sent to TAFE teachers in Australia. Note that it asks for ratings of both skills required and skills possessed.

F: The Workplace context:

(Please circle 0,1,2 or 3 in each column for each skill)

	SKILL	YOUR FREQUENCY OF USE OF SKILL				YOUR CURRENT SKILL LEVEL				SKILL LEVEL REQUIRED 1990s			
		none		low	high	none		low	high	none		low	high
F1.....	Know the operation of your college system	0	1	2	3	0	1	2	3	0	1	2	3
F2.....	Know the operation of your state/ territory TAFE authority	0	1	2	3	0	1	2	3	0	1	2	3
F3.....	Know current issues in vocational education and training in Australia	0	1	2	3	0	1	2	3	0	1	2	3
F4.....	Know the purpose of TAFE and your role within it	0	1	2	3	0	1	2	3	0	1	2	3
F5.....	Know the strategic plan for your TAFE system	0	1	2	3	0	1	2	3	0	1	2	3
F6.....	Understand the political and economic context of TAFE	0	1	2	3	0	1	2	3	0	1	2	3
F7.....	Understand gender issues in adult education	0	1	2	3	0	1	2	3	0	1	2	3
F8.....	Understand equal opportunity issues in adult education and the workplace	0	1	2	3	0	1	2	3	0	1	2	3
F9.....	Understand multicultural issues in adult education	0	1	2	3	0	1	2	3	0	1	2	3
F10.....	Understand the link between secondary schools and TAFE	0	1	2	3	0	1	2	3	0	1	2	3
F11.....	Know TAFE teachers' terms and conditions	0	1	2	3	0	1	2	3	0	1	2	3
	Please write in additional skills within 'the workplace context' that you consider are important:												
F12.....	.....	0	1	2	3	0	1	2	3	0	1	2	3
F13.....	.....	0	1	2	3	0	1	2	3	0	1	2	3
F14.....	.....	0	1	2	3	0	1	2	3	0	1	2	3

Data collection for skills analysis

Group process methods such as DACUM are commonly used to generate the skills register in a skills analysis. Other methods used include:

- interview;
- observation;

- organisational records (if skills lists already exist);
- questionnaire-based methods.

For questionnaire-based methods, open-ended questions may be used to generate the list of skills required, or existing skills lists could be used in the questionnaire.

Data collection for development of competency standards

Development of competency standards may be regarded as a particular type of skills analysis and again, group process methods are most commonly used. One group process technique developed specially for developing standards is *functional analysis*, and is now being used widely in Australia. This technique was described earlier in this chapter.

Data collection for skills audits

Questionnaire-based methods including self assessment questionnaires and knowledge tests are frequently used for skills audits while group process methods are rarely used. This is because questionnaire-based methods are efficient at collecting detailed information on individuals, while group methods are normally inappropriate and inefficient for collecting information on individuals. Other techniques such as observation methods including observation check lists and practical tests, interviews and organisational records are sometimes used.

For questionnaire-based methods the self-assessment questionnaire could contain two sections:

- biographical information - questions on the individual's name, work location, job title, age, gender, salary, education and training undertaken and career path;
- skills information - a list of skills or competencies with a YES/NO or other scale beside each, headed by a statement such as: *For each of the following skills indicate if you consider that you currently possess the skill by circling YES or NO.*

Competency assessment

Skills audits cover a wide spectrum of approaches, including self-assessment of skills. However, competency assessment is a skills audit activity which generally excludes self-assessment and requires the rigorous specification of competencies rather than skills. Competency assessment can be conducted by:

- teachers or trainers;
- supervisors; or
- workplace assessors.

In each case the assessor should be trained and experienced in competency assessment. Also, the assessment may be conducted off-the-job (e.g. by a TAFE teacher for a trainee undertaking a TAFE course) or on-the-job.

Observation methods, including observation check lists for the workplace and practical tests, provide the most appropriate approaches to competency assessment because they come closest to direct measurement of performance at the workplace. Other approaches are interviews and questionnaires (including knowledge tests).

Analyse data

Data analysis is an important part of skills projects. Data analysis is usually a separate phase in the project except for group process methods. The method of data analysis and ways of presenting results should normally be considered in the project proposal and planning stages.

The data collected in a skills project may be divided into the following main categories:

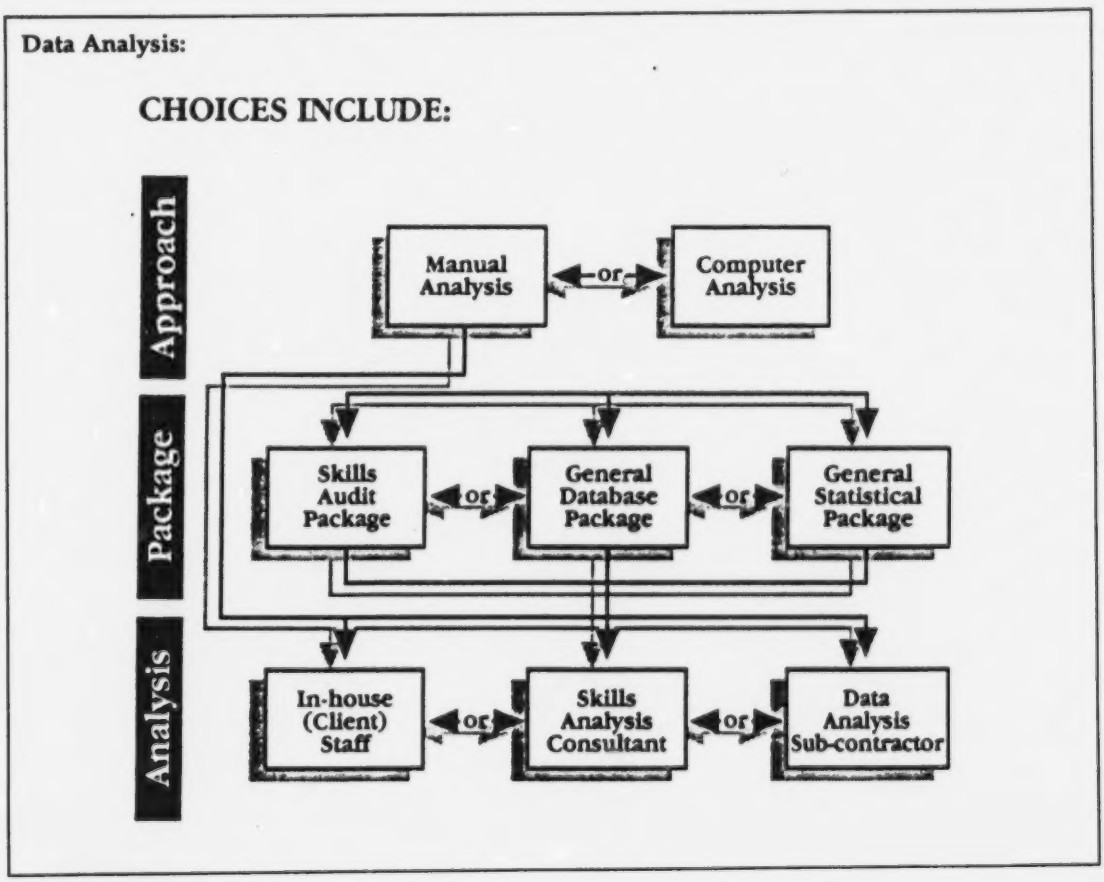
- background information on organisation and personal details;
- skills required for each job;
- skills possessed by the individual; and
- training needs and details of training programs.

If information covering all four categories has been obtained, a wide choice of ways of analysing the data is offered. Clearly, the way chosen and the format for the presentation of the results will depend upon the report's purpose and audience.

Choices for the data analysis need to be made on each of the following:

- manual or computer analysis;
- type of computer program;
- selection of analyst.

The following flow chart summarises the main decisions to be made.



The data may be analysed manually (for small studies) or by computer. The main types of computer programs available are:

- skills audit package;
- general database package;
- general statistical package.

In addition, there are three main choices on who should do the analysis:

- in-house (client) staff;
- the consultant;
- a data analysis subcontractor.

	SMALL STUDY (less than 20 people)	MEDIUM STUDY (20 to 100 people)	LARGE STUDY (over 100 people)
Manual analysis	R	N	N
Skills audit computer package:			
- in-house	P	R	R
- consultant	R	R	P
- sub-contract	N	P	R
General database package:			
- in-house	P	R	R
- consultant	R	R	P
- sub-contract	N	P	R
General statistical package:			
- in-house	P	P	R
- consultant	R	P	P
- sub-contract	N	P	R

Notes:

1. Key to symbols: N = not recommended
   P = possible option
   R = recommended option.

2. In-house means the client organisation in which the skills audit is conducted is given the task of data analysis. This may be desirable when integration with other data systems within the organisation is desired, and further skills audits are to be undertaken by the organisation.

3. Consultant means the consultant/TAFE teacher undertaking the skills audit also undertakes the data analysis phase of the project. This is best when such skills are available and the software is available.

4. Sub-contract means the consultant sub-contracts the data analysis to a data analysis consultant. The specification of the outputs should be carefully described by the consultant, in consultation with the client. This may be the most economical approach when a large once-off study is being undertaken.

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The choice of program and person will depend on a number of factors, including the size of the study, availability of software packages, availability of expertise, costs and degree of integration required with other client personnel data systems.

If a skills audit software package is to be selected, the following factors could guide the selection:

- whether the software is for the skills project consultant or the client;
- ease of use (e.g. menus, 'windows', mouse facility);
- ongoing software support;
- the range of functions (e.g. skills analysis, skills audit, training needs analysis);
- whether an integrated human resource package or a simple skills package is required;
- the cost of the package, including training in its use.

The following skills audit packages available in Australia are known to the authors:

- *BRS/Search* by Computer Sciences of Australia, Sydney;
- *Comp* + by Jacques Martin Hewitt International, Sydney;
- *Concept* by Concept Personnel Services Pty Ltd, Brisbane;
- *Job Analysis Systems* by Nobel Lowndes Cullen Egan and Dell, Sydney;
- *Job Design, Skills and Training Analysis System* by Workplace Resource Centre (Hunter Region), Newcastle;
- *Position Analyse* by TPF&C, Melbourne;
- *SIR Software* SIR (Australia) Pty Ltd, Sydney;
- *Skills Analysis System* by Workplace Resource Centre (SA) Adelaide;
- *Skills and Personnel Match* by Organisations Consulting Resources, Sydney;
- *Staff Track and Train Master* by Staff Track Australia, Melbourne;
- *T.L.C.* by Synchronised Software, Melbourne.

Report results

Thoughtful planning is required in order to present the results of the skills project in the most effective and efficient manner. The planning should consider:

- who are the target audiences?
- which formats are appropriate?
- how should the information be disseminated?

When these questions have been answered, the report(s) can confidently be prepared and distributed.

The audience for presentation of the results of a skills project could include one or more of the following groups:

- the project consultative committee;
- chief executives and managers;
- individual employees;
- training and personnel officers;
- teachers and curriculum developers in education and training institutions;
- researchers and academics; and
- the general public.

Because of the different needs of each group, different formats are likely to be more effective for each group.

The format covers the layout, design, expression and style, amount of technical terminology, content and physical size of the report. In general, written reports should avoid jargon words; technical terms should be used only when necessary. Technical terms and acronyms likely to be unfamiliar to readers should be defined in the report.

Provision of an executive summary is generally useful when the report is lengthy. It should contain essential information, leaving the detail to the main report and statistical appendices. Different recipients within a firm may require information in different formats. For example:

- the chief executive - an executive summary;
- the training and personnel manager - details on how outcomes affect job design and job classifications and training.

A good skills audit package will present the data to form an integral part of the report.

Some useful ways of presenting the date include:

- preparation of a skills register, showing the skills or competencies required for each job;
- preparation of a skills profile for each individual, showing the skills possessed and the skills required for his/her present job;
- aggregation of data on skills possessed for a group of people (an example of part of the graphical presentation of skills possessed, and skills required for TAFE teachers is given in the box below);
- preparation of skills matrix showing for comparison the skills possessed, skills required and skills developed in training programs. An example of a skills matrix is given in the box entitled 'skills matrix' (see below);
- cross-tabulation of data on skills with data on background information for groups of people; and

- in the case of a standards development project, preparation of a competency standards table, giving units of competence, elements of competence, performance criteria and range statements. See box on competency standards.

Part of the skills profile and skills analysis of TAFE teachers.

The Workplace Context

SKILL		SKILL LEVEL none	low		high
F1 Know the operation of your college system	(2.06)	0	1	2	3
F2 Know the operation of your state/territory TAFE authority	(1.46)	0	1	2	3
F3 Know current issues in vocational education and training in Australia	(1.48)	0	1	2	3
F4 Know the purpose of TAFE and your role within it	(2.00)	0	1	2	3
F5 Know the strategic plan for your TAFE system	(1.36)	0	1	2	3
F6 Understand the political and economic context of TAFE	(1.36)	0	1	2	3
F7 Understand gender issues in adult education	(1.49)	0	1	2	3
F8 Understand equal opportunity issues in adult education and the workplace	(1.68)	0	1	2	3
F9 Understand multicultural issues in adult education	(1.38)	0	1	2	3
F10 Understand the links between secondary schools and TAFE	(1.57)	0	1	2	3
F11 Know TAFE teachers' terms and conditions	(1.98)	0	1	2	3

LEGEND: Number in brackets is average frequency of use (1 = low; 3 = high)

_____ current skill level of TAFE teachers

..... skill level required 1990s (TAFE teacher survey)

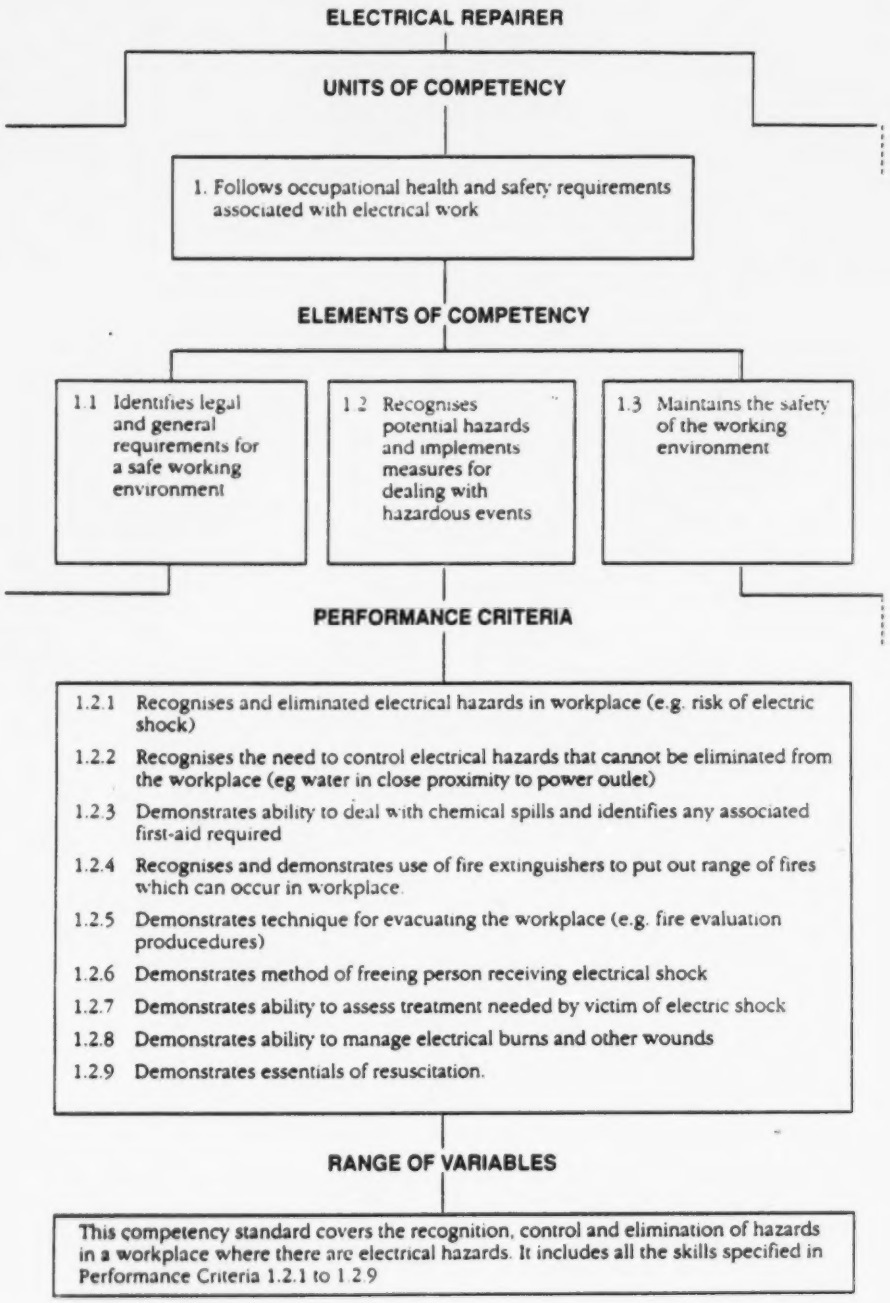
Skill matrix format for people and jobs

SKILLS/ COMPETENCIES	PEOPLE		JOBS		
	X	Y	1	2	3
A1	/	X	X	/	/
A2	/	X	X	/	/
A3	/	X	X	/	/
A4	/	X	X	/	/
A5	/	X	X	/	/
B1	/	/	/	X	X
B2	/	/	X	/	/
B3	X	/	X	/	/
B4	/	/	/	X	X
B5	X	/	/	X	X
B6	/	/	X	/	/
B7	/	/	/	/	/
C1	X	/	X	/	/
C2	X	X	/	X	X
C3	X	/	X	X	X
C4	/	X	X	/	/
D1	/	/	X	/	/
etc.					

Key: / = skill possessed or skill required for job.

X = skill not possessed or skill not required for job

Example of a competency standard.


ELECTRICAL REPAIRER
UNITS OF COMPETENCY
1. Follows occupational health and safety requirements associated with electrical work
ELEMENTS OF COMPETENCY
1.1 Identifies legal and general requirements for a safe working environment
1.2 Recognises potential hazards and implements measures for dealing with hazardous events
1.3 Maintains the safety of the working environment
PERFORMANCE CRITERIA
1.2.1 Recognises and eliminated electrical hazards in workplace (e.g. risk of electric shock)
1.2.2 Recognises the need to control electrical hazards that cannot be eliminated from the workplace (eg water in close proximity to power outlet)
1.2.3 Demonstrates ability to deal with chemical spills and identifies any associated first-aid required
1.2.4 Recognises and demonstrates use of fire extinguishers to put out range of fires which can occur in workplace.
1.2.5 Demonstrates technique for evacuating the workplace (e.g. fire evaluation producedures)
1.2.6 Demonstrates method of freeing person receiving electrical shock
1.2.7 Demonstrates ability to assess treatment needed by victim of electric shock
1.2.8 Demonstrates ability to manage electrical burns and other wounds
1.2.9 Demonstrates essentials of resuscitation.
RANGE OF VARIABLES
This competency standard covers the recognition, control and elimination of hazards in a workplace where there are electrical hazards. It includes all the skills specified in Performance Criteria 1.2.1 to 1.2.9

Chapter six: Implementing changes

Skills projects should ultimately lead to change in the workplace. So any report resulting from such projects should give guidance for the implementation of action such as:

- verification of skills and reclassification of individuals;
- development of a training plan;
- training for individuals and groups;
- job redesign; and
- change to work organisation.

All of these directly affect employees and therefore have industrial relations implications. The project consultative committee can be very helpful in this situation if the process is managed well. The committee should be issued with an early draft of the results of the project, and have a role in developing the recommendations or action plans arising from the study. At a later stage, a brief, written and/or oral report should be given to all employees involved. A more detailed report will be required by those implementing change. Confidential reports may go to a restricted few if previously agreed.

If a new industrial award is being implemented, the agreed procedure may involve verification of the skills profile of individuals and reclassification where appropriate.

The skills project is useful for identifying needs of individuals and groups of workers and the information provided by it can help in the development of a comprehensive training plan for individuals and groups. The plan may involve a combination of educational courses, on-the-job training, the design of new in-house training programs and job rotation.

In addition to various training responses, many non-training responses may be developed from the skills project and implemented in the workplace. Examples of non-training responses that should be considered are:

- job redesign, including simplifying the work method;
- change of working arrangements;
- recruiting recently trained workers;
- updating machines;
- review of wages policy;
- provision of barriers or guards for machines or imposition of fines for breaches of safety rules;
- varying of industrial awards;
- issuing more written instructions;
- placement of new workers next to experienced workers.

Change to work organisation and job redesign may occur before or after skills audit and skills analysis projects. In both cases, the process must be guided by the organisation's strategic plans.

Job redesign should be linked with skills analysis and/or skills audit information. If substantial changes in job design are to be implemented, a skills analysis may be usefully conducted both before and after the implementation of job redesign. Information from the first skills analysis will assist in the redesign of jobs. The second skills analysis will identify the actual skills required in the new job so that training can be planned.

Training of operators is crucial to the successful implementation of job redesign. The experience of enterprises undertaking workplace reform in Australia is characterised by large amounts of time and resources (more than initially planned) being devoted to training for the successful implementation of job redesign.

For change to be successful, those people affected must be involved in the planning and implementation of such changes. A choice needs to be made between implementation on a pilot basis (where only a section of the workplace implements change as a test case) or on a trial basis (where all sections implement change with the expectation of review after a period of time). Experience suggests that implementation of change to work organisation and job redesign on a trial basis is more successful than implementation on a pilot basis.

Industrial relations issues

The relationship between management and the workforce varies from enterprise to enterprise. A useful starting point is to assume that the interests of both parties do not perfectly coincide and that many agreed positions are reached on the basis of compromise.

The main industrial relations issues associated with a skills audit involve:

- wages, conditions of employment and allowances - concern about a loss of current entitlements;
- perceived loss of status for middle level positions through greater participation of the workforce in decision-making;
- provision of career paths and easy access to the means for moving along the career path, e.g. participation in accredited training during work time;
- the removal of barriers to the employment and promotion of people in targeted groups, particularly women;
- the avoidance of gender bias by giving due weight to all relevant skills, including interpersonal skills and other non-technical skills;
- perceived loss of status for given jobs - a reduction of education/training barriers will give greater access to positions currently held only by staff who completed a formal apprenticeship, perhaps leading to a perceived loss of privilege and status;
- coverage of the workplace by relevant unions - potential for the reduction in the number of unions covering the enterprise - loss of power and influence of some occupational groups;
- concern over having to attend formal education programs - fear of failure leading to reduced status;
- retrenchments - increased productivity flowing from new technology, job redesign and work reorganisation may result in redundancies. Skills audits sometimes could be used to identify individuals with skills least useful to the enterprise.

A good way to handle sensitive industrial relations issues is to work through the consultative committee and to avoid undue involvement with specific parties (e.g. representatives of one particular union).

Other factors to remember in industrial relations negotiations are:

- try to establish the interests of all parties and any issues or problems existing in the enterprise;
- ensure all staff understand the process and the likely effects on them; and
- maintain confidentiality over all individual data collected.

Experience has shown that attention to the above will ensure a more favourable industrial relations climate at the completion of the skills audit. When associated with other initiatives such as job redesign and training programs, it has led to improved productivity and job security in many Australian companies.

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Further reading

Alfthan, T. (1981). *Some alternative approaches to assessing training needs: a discussion.* Training Policies Discussion Paper No 2. Geneva: International Labour Office.

Training needs assessment provides a basic tool for achieving a balance in training planning between economic requirements and individual aspirations, and hence in minimising wastage in training efforts. The major objective of this monograph is to develop criteria for defining priorities in the field of training and for allocating investment resources to training activities.

Australian Institute of Training and Development (1987). Analysing training needs. *Human Resource Development in Action,* no.91, April-May.

Designed as a useful guide for those with little experience in training needs analysis, this paper presents a six step closed loop model which covers the entire training cycle, from the identification of training needs, to the final training-related outcomes. The model is based on a similar one devised by T. H. Boydell and lists a step-by-step methodology for accomplishing the set objectives and also to give a means of progressive evaluation.

Campbell, C. P. (1989). Job analysis for industrial training. *Journal of European Industrial Training,* 13 (2).

Job analysis is the common basis for designing a training course or program, preparing performance tests, writing job descriptions, identifying performance appraisal criteria and job design. This document has been prepared for those in the field of industrial training and education who are concerned with the need for and techniques of gathering accurate and complete job performance information.

Clark, T. W. (1990). *Getting to grips with skills audits.* Adelaide: TAFE National Centre for Research and Development Ltd.

Industry restructuring and award restructuring are hot topics in Australia at present. While most people have a general idea about what these involve, few realise the importance of skills audits to the process. This booklet discusses the role of the skills audit in industrial relations and training and also provides some useful industry and enterprise-based case studies for the general reader who wants to better understand this important trend in vocational education and training.

Curtain, R. (1988). *Guidelines on career path development and job restructuring: fifteen issues to consider.* Sydney: Department of Industrial Relations, University of Sydney. (Working paper series No 8, 1988).

This paper provides a checklist of fifteen points that should be considered in award restructuring negotiations, and has been formulated on the basis of the experience of companies in the mining and manufacturing industries in introducing new job structures. The guidelines are designed in such a way as to apply to 'industry in general'. The paper was originally published as Chapter 5 of a report to the Interstate Commission and the Stevedoring Industry Review Committee entitled *Options for skills upgrading, career paths and new job structures for the stevedoring industry.*

Curtain, R. (1989). *How to identify skills for award restructuring purposes using a modified DACUM technique.* Melbourne: National Key Centre in Industrial Relations, Monash University.

The question of how to identify workplace skills becomes all the more pressing with the new industrial relations reforms in Australia which seek to integrate training requirements with wages determination. The DACUM method has shown itself to be a valuable tool in identifying skills because it is open, participative, inexpensive and produces results quickly. This monograph describes how to identify skills at the industry level to provide the basis for developing a skills-based job structure.

Curtain, R. (1990). What's involved in doing a skills review? *Asia Pacific Human Resource Management* February 1990, 68-75.

This paper is based on a presentation made by the author to the Industry Training for the 1991's Conference, and outlines the key factors involved in conducting a skills review at either the industry or enterprise level. Five key factors are identified as essential to the successful conduct of a comprehensive skills review.

Fleishman, E. A. & Quaintunce, M. E. (1984). *Taxonomies of human performance: the description of human tasks.* Orlando: Academic Press Inc.

This book reviews recent efforts to grapple with taxonomic issues, and attempts to develop and evaluate systems for describing and classifying tasks that could improve generalisation of research results about human performance. This is done by using skill-related processes such as job and task analysis, skills analysis and human factors technology.

Frizzel, J. (1990). *Identifying skills in seven easy steps.* Melbourne: Labour Research Centre.

Award restructuring has brought about a need at both the enterprise and industry level to identify and define skills for a variety of reasons including: the development of skill related career paths, skill-based training the redesign of work. This booklet provides a practical guide to the process of skill identification, using a methodology developed by the Labour Research Centre drawn from its experience with a variety of companies and industries in Australia. The aims of the booklet are to demystify the skill identification process and show that by following a simple seven step method, future skills can easily be identified.

Hall, W.C., (1990). *Managing commercial educational research.* Adelaide: TAFE National Centre for Research and Development.

Commercial educational research is client-oriented and outcomes-driven and has received a tremendous boost during the past few years partly due to the Commonwealth Government's strong commitment to training and partly because of industry and award restructuring. This practical book may be used in three ways. First, it may be read right through in order to get a feeling for educational research. Secondly, the book may be used as a in-service workshop manual and thirdly, as a guide when preparing submissions. To assist with both of these last two uses, blank pages for notes have been provided.

Hayton, G., Clark, T., Guthrie, H., Fuller, D. & Oxley, S. (1988). *Training for Australian industry: A guide to research techniques for assessing industry training.* Canberra: AGPS.

This manual presents various methodologies for guiding effective investigation on industry/occupational skills requirements, and has been designed to assist those with the

responsibility of advising governments, education and training authorities on the skills required by industry. Techniques such as occupational and training needs analysis are discussed in conjunction with industry and labour market analysis. The manual will serve as the basis for the development of packages aimed at developing the skill base of Australian industry.

Hayton, G., Clark, T., Hayes, M. & Guthrie, H. (1988). *Training needs analysis.* Canberra: AGPS.

Skill in analysing training needs has long been recognised as an essential component in the armoury of trainers, training managers and those involved in curriculum design. This monograph summarises the key methods of occupational and training needs analysis and provides guidance in choosing the most suitable method for each occasion. The target audience for this monograph is training development executives, industry training committees, TAFE curriculum designers, private training providers and those responsible for developing training programs.

Hayton, G. (1990). Skills audits and training needs analysis. *Work and People,* 13(3), 25-31.

Award restructuring, and the broader process of industry restructuring are having the effect of significantly increasing the demand for skills audits and training needs analyses in Australia. Indeed, skills audits are a key part of the restructuring process. In this paper, the relationship between skills audits and award restructuring, and skills audits and training needs analysis are described and the role of TAFE in the process discussed. The paper concludes with some suggested guidelines for further development of skills audit approaches.

Hayton, G., Brady, P. & Daye, B. (1991). *Workshop package on skills analysis, skills audits and training needs analysis.* Adelaide: TAFE National Centre for Research and Development Ltd.

This package is designed to assist workshop leaders running two day workshops on skills analysis, skills audits and training needs analysis. It introduces the main techniques of skills analysis, methods of data analysis and reporting, project planning and management and discusses the industrial relations ramifications of the process. The package is ideal for TAFE college staff and trainers wanting to enter this specialised field.

Hayton G., & Loveder, P. (1992). *Skills audits.* Adelaide: TAFE National Centre for Research and Development.

This booklet provides a brief introduction to the skills audit and skills analysis process and covers the following broad topics: • why a skills audit?, • what is a skills audit?, • conducting a skills audit, • what happens after the skills audit? and • industrial relations issues. Designed as a useful guide for industry clients, the booklet is valuable for TAFE agencies and colleges wishing to provide potential customers with background information on the processes involved.

Haughton, G. & Peck, J. (1988). Skills audits - a framework for local economic development. *Local Economy* Vol 3 No 1 pp.11-19.

The aim of this paper is to provide an indication of current practice in creating skills audits, to review major data sources, and finally to provide a possible organising framework for conducting skills audits - introducing the notion of a local skills pool as an aid to analysis. The article presents a comprehensive methodology for conducting a skills audit, and discusses training needs in light of their relationship to equal opportunities policy, cost efficiency and quality of training.

Hughes, G. L. & Prien, E. P. (1989). Evaluation of task and job skills linkage, judgements used to develop test specifications. *Personnel Psychology* 42,238-292.

Research on job analysis, linking a job skill to specific tasks or duties has not been systematically examined. This paper discusses the use of job analysis data as the basis for the development of content-oriented tests for determining the skills held by an individual or the workforce as a whole.

Jons, J. A. R. (1980). A skills audit. *Training and Development Journal,* 34(9),79-81.

This article presents a nine step methodology for conducting a skills audit at the enterprise level with the aim of identifying the present stock of job skill levels, deficiencies in the skills held by the workforce, anticipated future skill problem areas and areas for skill replenishment.

Mager, R. F. & Pipe, P. (1984). *Analysing performance problems.* Belmont: David S. Lake Publishers. .

This book is concerned with the problems that arise when employees aren't (or can't) doing what is asked of them. It describes a series of questions an organisation needs to ask when faced with this sort of 'performance deficiency', and offers a quick-reference checklist to determine what type of solution is most likely to succeed. Sometimes the solution is to provide further information, structured training or simply practice; sometimes changes to work organisation or machinery is more appropriate. A procedure for analysing and identifying the nature and cause of human performance problems is introduced and potential solutions documented.

Mitchell, S., Clark, R. & Hayton, G. (1990). *Report on the skills analysis of laboratory staff in the paint manufacturing industry.* Adelaide: TAFE National Centre for Research and Development Ltd.

The TAFE National Centre for Research and Development was commissioned by the Australian Paint Manufacturers' Federation (APMF) to undertake a skills analysis and syllabus evaluation project of laboratory staff as the first step in the award restructuring process. Using a modified version of the DACUM model and personal interviews, the project identified the competencies required for paint industry laboratory staff covered by the existing award, analysed the skills required to identify job type and design, skill levels and training and developed a syllabus evaluation procedure.

National Training Board. (1990). *Setting national skill standards: a discussion paper.* Canberra: NTB.

This discussion paper describes the Australian standards development process, and provides a step-by-step methodology for developing standards and vocational training models. The paper also describes the key features of competences, performance criteria and provides a useful glossary of terms which should assist readers in their understanding of the discussion paper.

National Training Board. (1991). *National competency standards, policy and guidelines.* Canberra: NTB.

This document describes the Australian standards framework and the format for developing competency standards. The role of the National Training Board and its activities are discussed, and the various methods of analysing and assessing training needs at both the enterprise and industry levels described. The publication is a revised and enlarged version of the earlier document: *Setting national skill standards: a discussion paper.*

National Building and Construction Industry Training Council (1989). *Skill audits and analysis of occupational classifications in the building and construction industry.* Canberra: NBCITC.

This report outlines a proposed methodology for researching formally and informally developed skills in seven major trade classifications within five sectors of the building and construction industry and across all States and Territories. The project outcomes will include:

- demographic profiles of the workforce, including types of skills held;
- profiles of task skills in use, including specialisations;
- descriptions of skill/ability levels;
- identification of the extent and level of skills developed informally, and the learning process.

This information will be used to develop improved competency-based skill development and training arrangements.

Trade Union Training Authority. (1990). *Skills analysis and audits: a trade union training package.* Prepared by the Labour Resource Centre, Melbourne TUTA.

In the past, the design of jobs into small, segmented tasks has limited the development of workers' skills. Jobs need to be redesigned to bring about expanding skill formation opportunities. This package has been developed to assist in the process of skill identification, which will show what skills are currently used, future skills needs required by industry and enable skill formation and structured paths to occur. The package is in three parts. Part A and B outline the process of identifying skills. Part C suggests practical exercises.

Windsor, K. (1991). *Skill counts: how to conduct gender-bias free skills audits.* Canberra: AGPS.

This report is designed to assist management, unions and employee representatives involved in the implementation of new awards and the restructuring of their workplaces. It outlines how skills analyses and audits can be used to identify and describe the skills of all workers. It is the result of a project sponsored by the Women's Employment, Education and Training Advisory Group (WEETAG) and provides a practical, easy-to-read book which highlights the purpose of skills audits and which promotes an approach that doesn't understate the skills used in traditional 'women's jobs'.

Glossary of terms

AWARD RESTRUCTURING:	The substantial changing of industrial awards to allow new types of work organisation to be introduced into workplaces.
COMPETENCE:	Ability to perform the activities within an occupation or function to the standard expected in employment.
COMPETENCY:	see competence.
COMPETENCIES:	Activities described as outcomes to suit workplace requirements.
COMPETENCY STANDARD:	An activity performed under specified conditions to a specified standard of performance in the workplace. It comprises two main parts: element of competency; and performance criteria.
JOB ANALYSIS:	The identification of the duties and tasks which comprise each job, together with other relevant job information.
JOB EVALUATION:	The appraisal of individual tasks which together form a job, to allow evaluations of jobs and comparisons of jobs to be undertaken.
JOB REDESIGN:	The systematic analysis of and altering of the method of doing a job based on knowledge of the technical and human aspects of the work involved.
OCCUPATIONAL ANALYSIS:	The identification of the current and likely future jobs within an occupation, and the duties and tasks which comprise each job, together with other relevant job information.
PERFORMANCE CRITERIA:	Statements by which an assessor can judge the performance specified in the elements of competency to a level acceptable in employment.
SKILLS ANALYSIS:	A systematic process which identifies the skills or competencies *required* for a particular job.
SKILLS AUDIT:	A systematic process which identifies the skills or competencies *held* by an individual or a group.
SKILLS INVENTORY:	A detailed list of skills required for a job. Also referred to as a skills register.
SKILLS MATRIX:	A table or chart showing the skills possessed by people, and the skills required for one or more jobs.
SKILLS PROFILE:	The listing of the skills possessed by an individual or group.
SKILLS REGISTER:	A detailed list of skills required for a job.
TRAINING NEEDS ANALYSIS:	The identification of the differences between the skills or competencies held by an individual or group and the skills or competencies required for the job.

WORK ORGANISATION:	Describes how the process of work is divided and arranged between people, between machines, and between people and machines in an enterprise.
WORK PROCESS ANALYSIS:	Examines the technical sub-system of the work, including the workplace layout, jobs, technology, operations, procedures, material flow and information flow.
WORKPLACE REFORM:	The planning and implementation of new forms of work organisation, job redesign and associated training in an enterprise.